

SWING and AWT - Best Practice

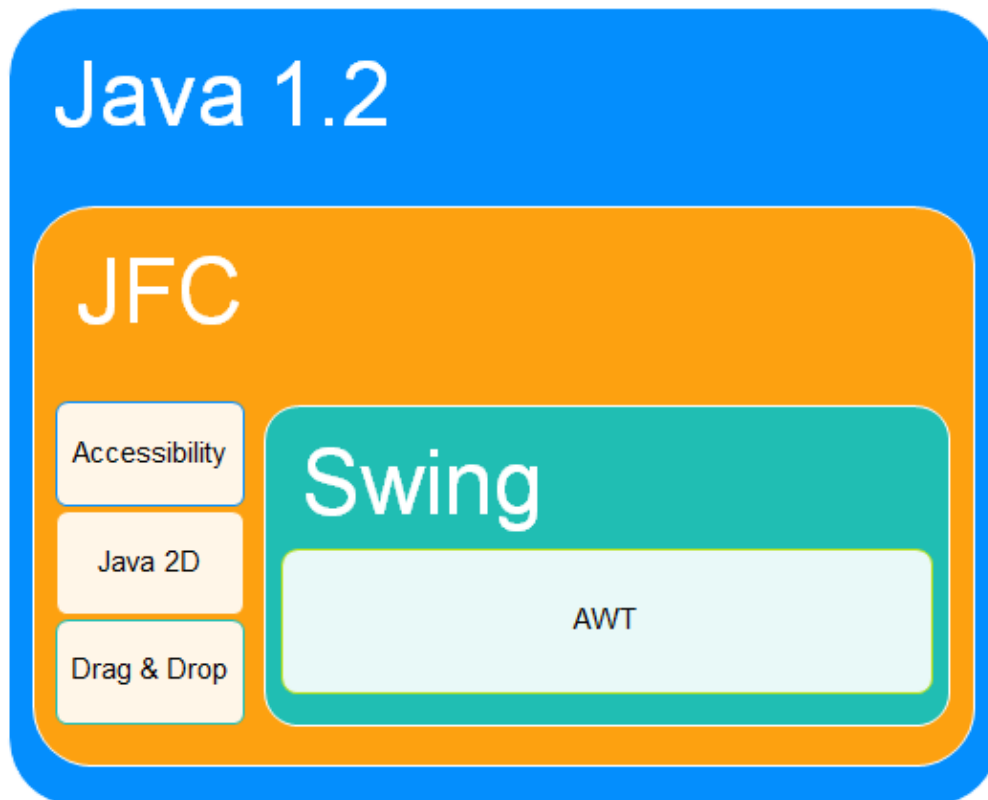
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Target Audience: CAST Administrators

Summary: This document provides a guide based on CAST's field experience on how to configure Swing and AWT based applications using CAST AIP. These configurations are used all versions of CAST AIP 8.2.x and above for Swing and AWT offering (see Reference Materials below for links) to overcome limitations such as missing links. The applicability of this guide should have assessed for newer versions of CAST AIP and Extension.

Introduction to Swing and AWT

This section gives a brief overview of the framework.



Abstract Window Toolkit (AWT) is Java's original platform-dependent windowing, graphics, and user-interface widget toolkit. From first release of Sun Microsystems Java in 1995, AWT.

1.
 - a. Java 1.0 & Java 1.1 - These features are provided by the Abstract Windowing Toolkit (AWT). Java 2D
 - b. Java 1.2 - JFC were introduced. Printing capability.
 - c. Java 2.0 - Swing is a core part for this release.

AWT existed before JFC. [AWT](#) was heavily criticized for being little more than a wrapper around the native graphical capabilities of the host platform. An alternative graphics library called the [Internet Foundation Classes](#) was developed in more platform-independent code by [Netscape](#). Same time, another graphics library, called [Application Foundation Classes](#) (AFC), was developed independently by [Microsoft](#). It was made to be easier to extend the graphic components, but was primarily aimed for use with the [Microsoft Java Virtual Machine](#). On April 2, 1997, [Sun Microsystems](#) and [Netscape](#) announced their intention to combine IFC with other technologies to form the "Java Foundation Classes" [1] It is later renamed to "Swing", adding the capability for a [pluggable look and feel](#) of the widgets.

Versions of Swing and AWT supported by CAST

This section highlights the Swing and AWT versions supported by CAST AIP 8.2.x.

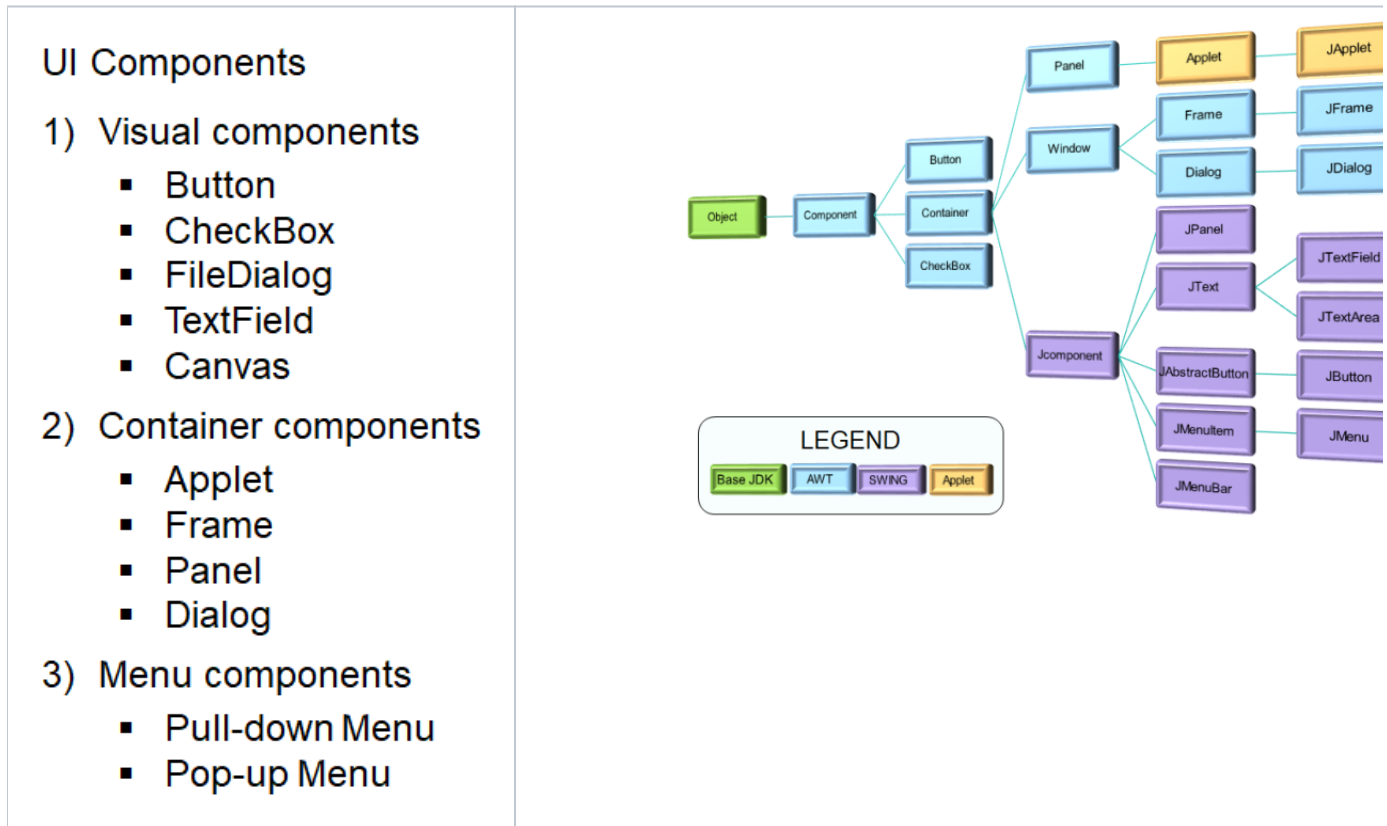
- [Java JDK 1.1 - 1.8](http://doc.castsoftware.com/display/DOC82/J2EE+technologies) : <http://doc.castsoftware.com/display/DOC82/J2EE+technologies>

File Types expected for Swing and AWT

This section highlights all the file types that can be expected to be delivered if the application has implemented this framework.

- **Java (Standalone Swing and AWT)**
 - .java
- **Web based solution :**
 - [Java™ Web Start](#)
 - .html
 - .jsp
 - Web based applications

Swing and AWT - JFC Hierarchy & Classifications



How to identify the implementation of Swing and AWT

This section details the approach for identifying the presence of Swing and AWT in the code delivered.

Component	Event handler	Listener	Methods	Adapters
Button List MenuItem TextField	actionPerformed(E)	ActionListener	addActionListener()	ActionAdapter
Frame	windowActivated(E) windowClosed(E) windowClosing(E) windowDeactivated(E) windowDeiconified(E) windowIconified(E)	WindowListener	addWindowListener()	WindowAdapter
Frame Panel	componentAdded(E) componentRemoved(E)	ContainerListener	addContainerListener()	ContainerAdapter
Scrollbar	adjustmentValueChanged(E)	AdjustmentListener	addAdjustmentListener()	
Button / Key Canvas Panel	keyPressed(E) keyReleased(E) keyTyped(E)	KeyListener	addKeyListener()	KeyAdapter
Button / Mouse Canvas Panel	mouseClicked(E) mouseEntered(E) mouseExited(E) mousePressed(E) mouseReleased(E)	MouseListener	addMouseListener()	MouseAdapter
Button / Mouse Canvas Panel	mouseDragged(E) mouseMoved(E)	MouseMotionListener	addMouseMotionListener()	MouseMotionAdapter
TextComponent	textValueChanged(E)	TextListener	addTextListener()	

Swing and AWT Description

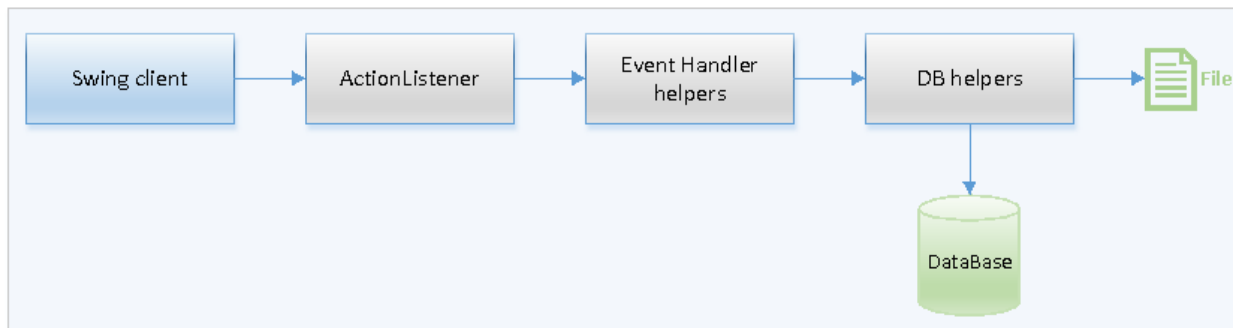
This section gives a brief overview of Swing and AWT.

The Java Foundation Classes (JFC) are a comprehensive set of GUI components and services which dramatically simplify the development and deployment of commercial-quality desktop and Internet/Intranet applications.

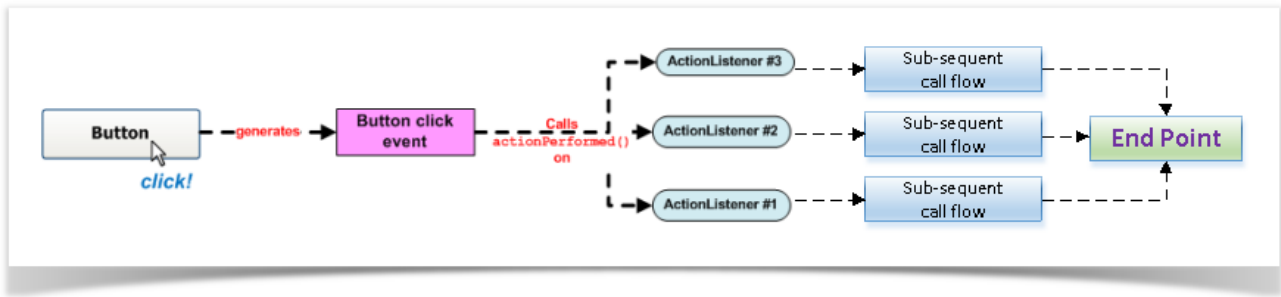
- Swing is the project code name for the lightweight GUI components in JFC.
- Accessibility API enables Java applications to work with alternate input and output devices such as Screen Readers, Screen Magnifiers, Braille terminals, and others.
- Java 2D, developers can render, manipulate, and transform complex 2D images and text. Java 2D enables the creation of richer-looking components and applications.

Drag & Drop - Supports dragging and dropping of objects between java program or non-java programs.

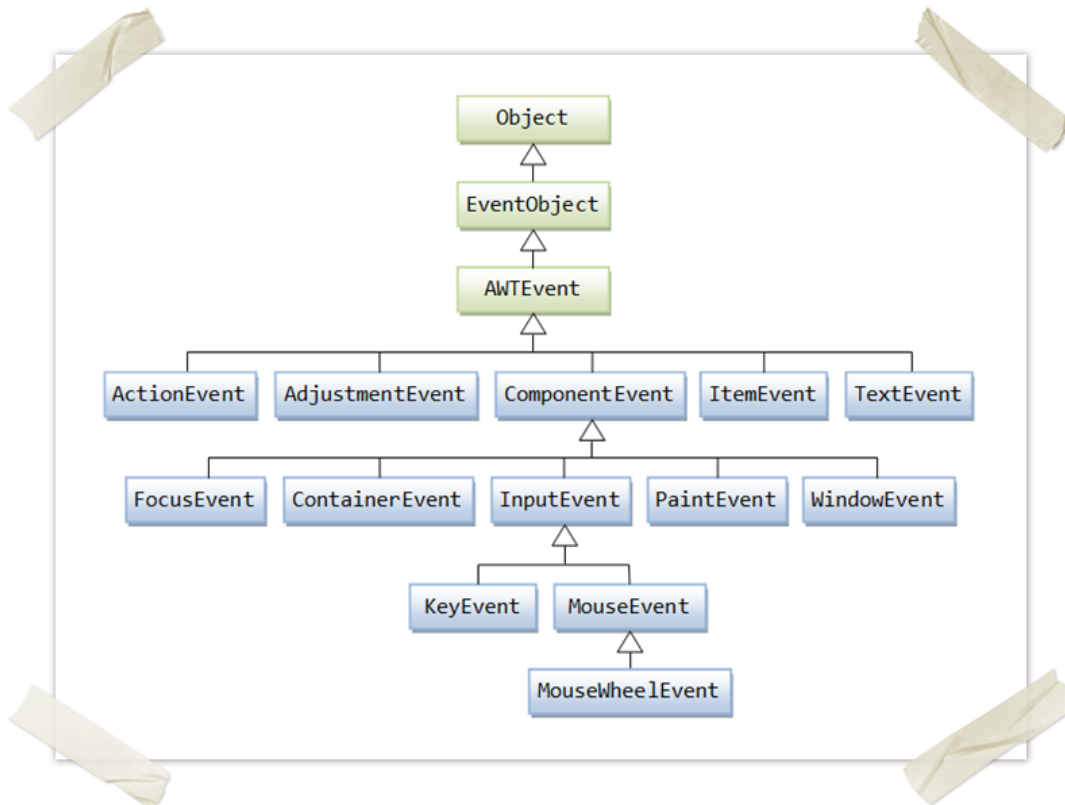
Standard flow:



CAST View



Event Hierarchy:



How to configure Swing and AWT in CAST AIP

This section describes all the CAST configuration steps to be followed in order to configure Swing and AWT based application.

Server Manager Configuration

N/A

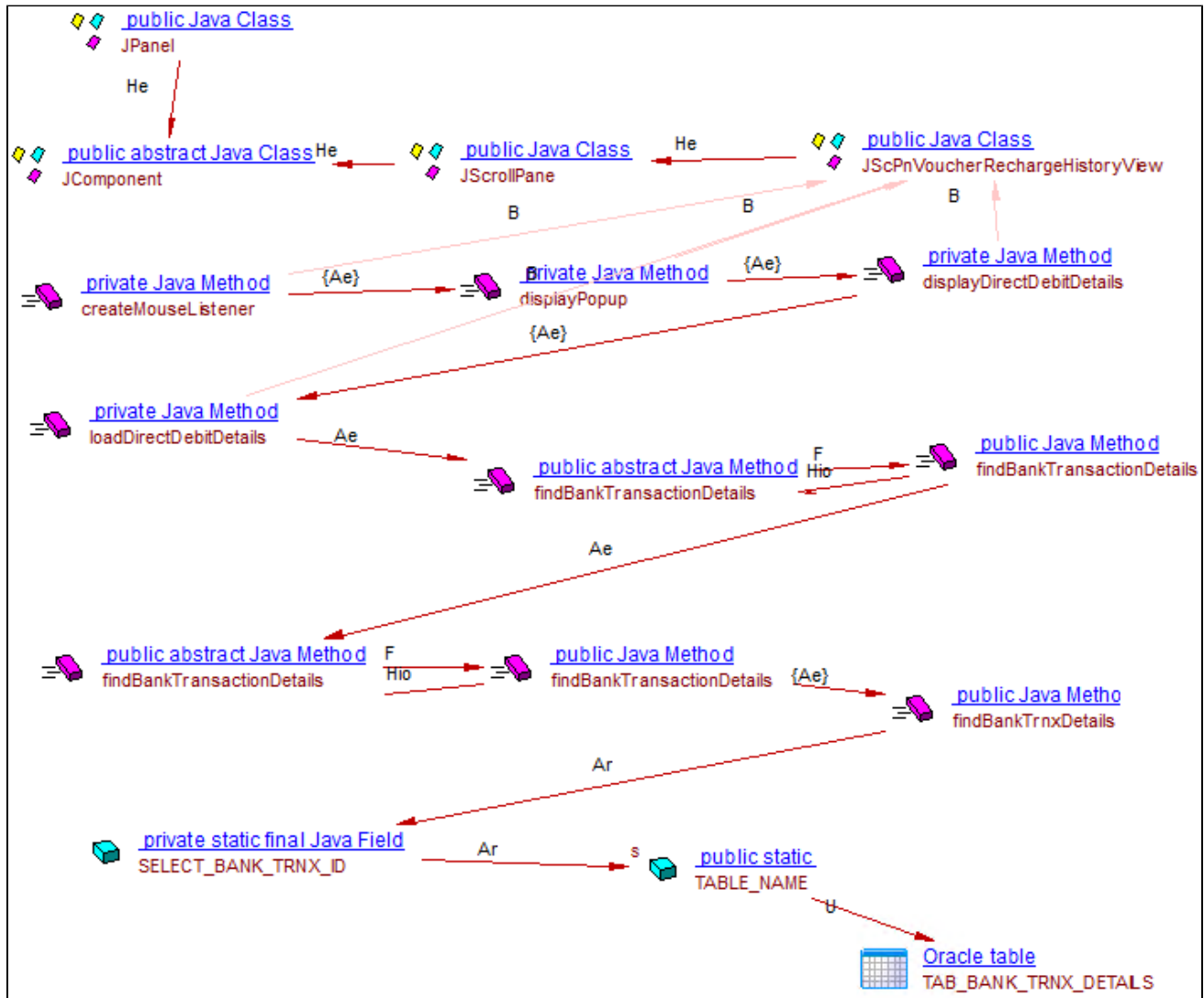
Pre Analysis Configuration

N/A

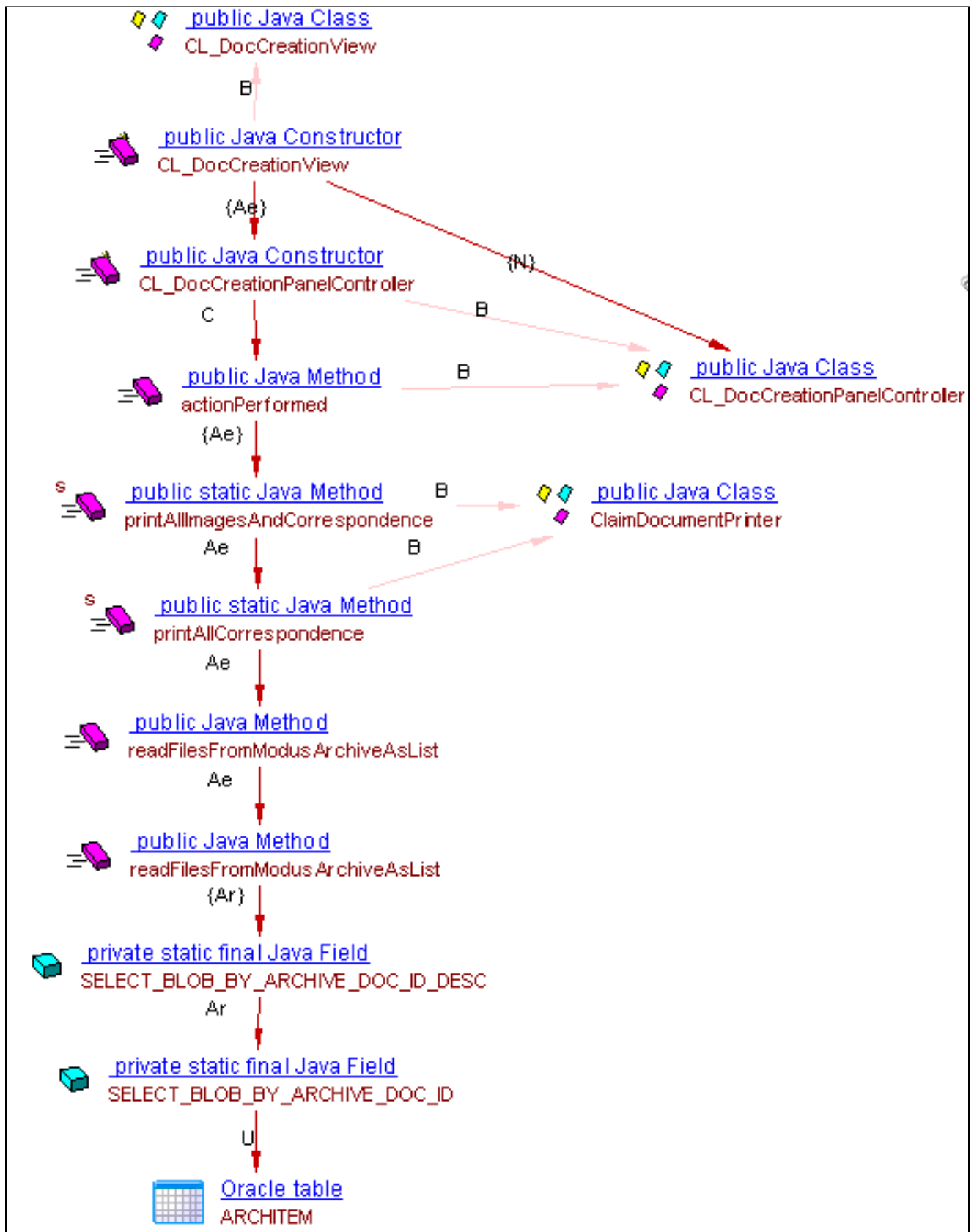
Enlighten

This section gives an overview of the Enlighten diagram.

- Sample #1



- Sample #2



CMS Configuration

N/A

TCC Configuration

- [UI Component's - Entry point.](#)
- Recommending to apply "Transaction Configuration Kit".

References

Topic	Link
Java Foundation Classes	https://en.wikipedia.org/wiki/Java_Foundation_Classes
Listeners vs Adapters	https://blogs.oracle.com/corejavatechtips/listeners-vs-adapters
AWT Events in Java	https://way2java.com/awt-events/java-made-clear-difference-between-listener-and-adapter/
Swing Components and Containers	http://www.studytonight.com/java/java-swing-components.php
Java Swing Tutorial for beginners	http://beginnersbook.com/2015/07/java-swing-tutorial/
Trail: Creating a GUI With JFC/Swing	https://docs.oracle.com/javase/tutorial/uiswing/
Java Swing Tutorial	https://www.javatpoint.com/java-swing
Java AWT Tutorial	https://www.javatpoint.com/java-awt
Java Adapter Classes	https://www.javatpoint.com/java-adapter-classes
Introducing Swing	https://www.safaribooksonline.com/library/view/java-swing/156592455X/ch01.html
Introducing Swing and the JFC	http://javadevwannabe.blogspot.in/2012/02/introducing-swing-and-jfc.html
Event Handling in JDK 1.1, Scrollbar (Adjustment) Events	http://www.dickbaldwin.com/java/Java090.htm